

Appl. No. : 09/970,389  
Filed : October 2, 2001

### REMARKS

By way of summary, Claims 1-67 were originally filed with the application. In a subsequent response to Restriction Requirement, Applicant elected Claims 25-48 and cancelled the remaining claims. Accordingly, Claims 25-48 remain pending in the present application. By this amendment, Claim 25 is amended and no new claim is added.

In the Office Action, the Examiner indicates that Claims 11-24 are rejected under 35 U.S.C. 103(a). For the purpose of responding to this Office Action, Applicant assumes that the Examiner actually meant to reject the pending Claims 25-48 rather than the previously cancelled Claims 11-24. If Applicant's understanding is incorrect, the Examiner is respectfully requested to contact the Applicant's representatives.

#### **Claim rejections under 35 U.S.C. §103(a)**

The Examiner rejected Claims 11-30 [*sic*: Claims 25-48] under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 6,030,447 to Naji et al. ("Naji") with or without U.S. Patent No. 4,138,313 to Hillstrom et al. ("Hillstrom"). However, after carefully reviewing both references, Applicant notes that neither reference, either individually or in combination, is directed to a composite material incorporating cellulose fibers having a COD content of *less than about 5 kg/ton*. See, e.g., independent Claims 25 and 33.

One novel aspect of Applicant's invention is directed to a composite material reinforced by cellulose fibers having a COD content of less than about 5 kg/ton. Applicant has found that incorporation of cellulose fibers having the recited COD content provides numerous advantages to the composite material, such as improved modulus of rupture (MOR), modulus of elasticity (MOE), ultimate strain and toughness energy. Applicant further submits that conventional pulp treatment processes are generally incapable of yielding fibers with COD content in the range claimed by Applicant.

While Naji is directed to a cementitious material reinforced by cellulose fibers, it discloses using fibers chemically treated by the Kraft process (See, e.g., Col. 2, lines 13-14 of Naji). It is generally known that the Kraft process entails treating the pulp with chemicals such as caustic soda and sodium sulfide, which contribute to the COD content of the pulp. The chemicals used in the Kraft process break down the lignin of the cellulose fibers into components, which is also known to add CODs to the pulp. This is contrary to the Examiner's

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position that Naji uses strictly mechanical fibers and thus should inherently produce low COD fibers.

Applicant also respectfully disagrees with the Examiner's assertion that even if Naji uses chemically treated fibers, it would have been obvious to the routineer to wash the chemical pulp to remove residuals as taught by Hillstrom. Applicant submits that nowhere in Hillstrom does it teach or suggest washing the pulp in a manner so as to produce fibers having a COD content of less than about 5 kg/ton. While the Examiner asserts that Table V of Hillstrom provides two examples (Example Nos. 20 and 21) showing COD contents of 0.36 g/l, Applicant notes that the 0.36 g/l numbers actually refer to the *COD content in the suspending liquor, not of the pulp*. Applicant further notes that the COD content of the pulp in the examples are 20 and 19 kg/ton respectively as shown in Table V. In fact, all of the examples shown in Hillstrom have pulp COD content well in excess of the 5 kg/ton claimed by Applicant.

Moreover, Applicant notes that nowhere in Hillstrom does it teach washing the pulp under high temperature conditions as described in Applicant's disclosure. The washing method disclosed by Hillstrom is unlikely to produce pulp having the COD content level of less than about 5 kg/ton. As such, Naji and Hillstrom, alone or in combination, do not teach or suggest a composite material incorporating cellulose fibers having a COD content of less than about 5 kg/ton. Accordingly, Applicants respectfully request that the rejections based on these references be withdrawn.

### **Conclusion**

In view of the foregoing, Applicants respectfully submit that all pending claims of the present application are in condition for allowance, and such action is earnestly solicited. Should there be any impediment to the prompt allowance of this application of this application that could be resolved through a telephone conference, the Examiner is respectfully requested to call the undersigned at the number shown below.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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